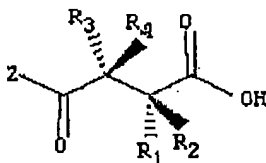


Application No. 10/748,844  
 Response to Restriction Requirement mailed July 26, 2005

### CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A compound of general formula  $Z-OC(CR_{n1}R_{n2})-CO-Z$  wherein  $Z = OH$  or  $NH_2$ , and  $n1 = n2 = 1$  to 8, wherein one R in the compound is selected from the group consisting of  $SO_3H$ ,  $OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ , and  $NHSO_3H$ , and the remaining Rs are H or  $NH_2$ , and non-toxic salts thereof.
2. (Currently Amended) A compound as claimed in claim 1 having a structure as shown below and bearing general formula  $ZOC-CR_3R_4-CR_1R_2-COOH$  wherein:  $Z=OH$  or  $NH_2$ ,  $R_1$  to  $R_4$  denotes H,  $NH_2$ ,  $SO_3H$ , or  $OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ ,  $NHSO_3H$



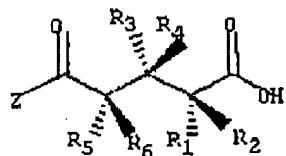
Structure 1

, and non-toxic salts thereof.

3. (Currently Amended) A compound as claimed in claim 1 having a structure as shown below and bearing general formula  $ZOC-CR_5R_6-CR_3R_4-CR_1R_2-COOH$  wherein:  $Z=OH$  or  $NH_2$ ,  $R_1$  to  $R_6$  denotes H,  $NH_2$ ,  $SO_3H$ , or  $OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ ,  $NHSO_3H$

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005



Structure 2

, and non-toxic salts thereof.

4. (Currently Amended) A compound as claimed in claim 1 having a structure as shown below and bearing general formula  $ZOC-CR_7R_8-CR_5R_6-CR_3R_4-CR_1R_2-COOH$  wherein:  $Z=OH$  or  $NH_2$ ,  $R_1$  to  $R_8$  denotes H,  $NH_2$ ,  $SO_3H$ , or  $OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ ,  $NHSO_3H$



Structure 3

, and non-toxic salts thereof.

5. (Currently Amended) A [[C]] compound as claimed in claim 2, wherein the compound is selected from the group consisting of:
- I [L- Aspartic acid, N-Sulfonic acid],
  - II [2 $\alpha$ ,3-dicarboxy, propane-1-sulfonic acid],
  - III [2 $\alpha$ ,3-dicarboxy, propane-1-sulfate],
  - IV [1 $\alpha$ ,2-carboxy ethane sulfonic acid],
  - V [1 $\alpha$ ,2-carboxy ethane sulfate],
  - VI [D-aspartic acid, N-sulfonic acid],
  - VII [2 $\beta$ ,3-carboxy,propane-1-sulfonic acid],
  - VIII [2 $\beta$ ,3-carboxy,propane-1-sulfate],
  - IX [1 $\beta$ ,2-carboxy ethane-1-sulfonic acid],
  - X [1 $\beta$ ,2-carboxy ethane-1-sulfate],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XI [D-aspartic acid, 3 $\alpha$ -sulfonic acid],
- XII [D-aspartic acid, 3 $\alpha$ -sulfate],
- XIII [D-aspartic acid, 3 $\beta$ -sulfonic acid],
- XIV [D-aspartic acid, 3 $\beta$ -sulfate],
- XV [L-asparagine, N-sulfonic acid],
- XVI [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVII [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XIX [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfate],
- XX [L-asparagine, 3 $\alpha$ -sulfonic acid],
- XXI [L-asparagine, 3 $\alpha$ -sulfate],
- XXII [L-asparagine, 3 $\beta$ -sulfonic acid],
- XXIII [L-asparagine, 3 $\beta$ -sulfate],
- XXIV [D-asparagine, N-sulfonic acid],
- XXV [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXVI [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXVII [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XXVIII [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfate],
- XXIX [D-asparagine, 3 $\alpha$ -sulfonic acid],
- XXX [D-asparagine, 3 $\alpha$ -sulfate],
- XXXI [D-asparagine, 3 $\beta$ -sulfonic acid],
- XXXII [D-asparagine, 3 $\beta$ -sulfate],
- XXXIII [L-glutamic acid, N-sulfonic acid],
- XXXIV [2 $\alpha$ , 4-dicarboxy, butane-1-sulfonic acid],
- XXXV [2 $\alpha$ , 4-dicarboxy, butane-1-sulfate],
- XXXVI [1 $\alpha$ , 3-dicarboxy, propane sulfonic acid],
- XXXVII [1 $\alpha$ , 3-dicarboxy, propane sulfate],
- XXXVIII [1 $\beta$ , 3-dicarboxy, propane sulfate], and
- XXXIX [1 $\beta$ , 3-dicarboxy, propane sulfonic acid], and

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

6. (Currently Amended) A [[C]]compound as claimed in claim 3, wherein the compound is selected from the group consisting of:
- I. [D-glutamic acid, N-sulfonic acid],
  - II. [2 $\beta$ , 4-dicarboxy, butane-1-sulfonic acid],
  - III. [2 $\beta$ , 4-dicarboxy, butane-1-sulfate],
  - IV. [D-glutamic acid, 3 $\alpha$ -sulfonic acid],
  - V. [D-glutamic acid, 3 $\alpha$ -sulfate],
  - VI. [D-glutamic acid, 3 $\beta$ -sulfonic acid],
  - VII. [D-glutamic acid, 3 $\beta$ -sulfate],
  - VIII. [D-glutamic acid, 4 $\alpha$ -sulfonic acid],
  - IX. [D-glutamic acid, 4 $\alpha$ -sulfate],
  - X. [D-glutamic acid, 4 $\beta$ -sulfonic acid],
  - XI. [D-glutamic acid, 3 $\beta$ -sulfate],
  - XII. [L-glutamine, N-sulfonic acid],
  - XIII. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
  - XIV. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfate],
  - XV. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
  - XVI. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
  - XVII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
  - XVIII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
  - XIX. [D-glutamine, N-sulfonic acid],
  - XX. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
  - XXI. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfate],
  - XXII. [D-glutamine, 3 $\alpha$ -sulfonic acid],
  - XXIII. [D-glutamine, 3 $\alpha$ -sulfate],
  - XXIV. [D-glutamine, 3 $\beta$ -sulfonic acid],
  - XXV. [D-glutamine, 3 $\beta$ -sulfate],
  - XXVI. [D-glutamine, 4 $\alpha$ -sulfonic acid],
  - XXVII. [D-glutamine, 4 $\alpha$ -sulfate],
  - XXVIII. [D-glutamine, 4 $\beta$ -sulfonic acid],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- XXIX. [D-glutamine, 4 $\beta$ -sulfate],
- XXX. [L-homoglutamic acid, N-sulfonic acid],
- XXXI. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfonic acid],
- XXXII. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfate],
- XXXIII. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfonic acid],
- XXXIV. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfate],
- XXXV. [D-homoglutamic acid, N-sulfonic acid],
- XXXVI. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfonic acid],
- XXXVII. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfate],
- XXXVIII. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfonic acid], and
- XXXIX. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfate].[[,]]

7. (Currently Amended) A [[C]] compound as claimed in claim 4, wherein the compound is selected from the group consisting of:

- I. [D-homoglutamic acid, 3 $\alpha$ -sulfonic acid],
- II. [D-homoglutamic acid, 3 $\alpha$ -sulfate],
- III. [D-homoglutamic acid, 3 $\beta$ -sulfonic acid],
- IV. [D-homoglutamic acid, 3 $\beta$ -sulfate],
- V. [D-homoglutamic acid, 4 $\alpha$ -sulfonic acid],
- VI. [D-homoglutamic acid, 4 $\alpha$ -sulfate],
- VII. [D-homoglutamic acid, 4 $\beta$ -sulfonic acid],
- VIII. [D-homoglutamic acid, 4 $\beta$ -sulfate],
- IX. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- X. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- XI. [D-homoglutamic acid, 5 $\beta$ -sulfonic acid],
- XII. [D-homoglutamic acid, 5 $\beta$ -sulfate],
- XIII. [L-homoglutamine, N-sulfonic acid],
- XIV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfate],
- XVI. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfonic acid],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XVII. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfate],
- XVIII. [D-homoglutamine, N-sulfonic acid],
- XIX. [Pentane-2 $\beta$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XX. [Butane-1  $\beta$ -carboxy, 4-carboxamido-1-sulfonic acid],
- XXI. [Butane-1  $\beta$ -carboxy, 4-carboxamido-1-sulfate],
- XXII. [D-homoglutamine, 3 $\alpha$ -sulfonic acid],
- XXIII. [D-homoglutamine, 3 $\alpha$ -sulfate],
- XXIV. [D-homoglutamine, 3 $\beta$ -sulfonic acid],
- XXV. [D-homoglutamine, 3 $\beta$ -sulfate],
- XXVI. [D-homoglutamine, 4 $\alpha$ -sulfonic acid],
- XXVII. [D-homoglutamine, 4 $\alpha$ -sulfate],
- XXVIII. [D-homoglutamine, 4 $\beta$ -sulfonic acid],
- XXIX. [D-homoglutamine, 4 $\beta$ -sulfate],
- XXX. [D-homoglutamine, 5 $\alpha$ -sulfonic acid],
- XXXI. [D-homoglutamine, 5 $\alpha$ -sulfate],
- XXXII. [D-homoglutamine, 5 $\beta$ -sulfonic acid], and
- XXXIII. [D-homoglutamine, 5 $\beta$ -sulfate].

8. (Currently Amended) Novel sulfonic acid / sulfate derivatives of the The compound of claim 2, wherein:

a) Z is OH, R<sub>2</sub>-R<sub>4</sub> are H, and R<sub>1</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H,

b) Z is OH, R<sub>1</sub> and R<sub>3-4</sub> are H, and R<sub>2</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H,

c) Z is OH, R<sub>1</sub> and R<sub>4</sub> are H, R<sub>2</sub> is NH<sub>2</sub>, and R<sub>3</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H,

d) Z is NH<sub>2</sub>, R<sub>2</sub>-R<sub>4</sub> are H, and R<sub>1</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H,

e) Z is NH<sub>2</sub>, R<sub>1</sub> and R<sub>4</sub> are H, R<sub>2</sub> is NH<sub>2</sub>, and R<sub>3</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H,

f) Z is NH<sub>2</sub>, R<sub>1</sub> and R<sub>3</sub> are H, R<sub>2</sub> is NH<sub>2</sub>, and R<sub>4</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H, or

g) Z is NH<sub>2</sub>, R<sub>1</sub> and R<sub>3-4</sub> are H, and R<sub>2</sub> is selected from the group consisting of SO<sub>3</sub>H, OSO<sub>3</sub>H, CH<sub>2</sub>--SO<sub>3</sub>H, CH<sub>2</sub>--OSO<sub>3</sub>H, and NHSO<sub>3</sub>H,

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

and non-toxic salts thereof formulae  $ZOC-CR_3R_4-CR_1R_2-COOH$  as claimed in claim 2,  
wherein:

$Z=OH$  or  $NH_2$ ,  $R_1$  to  $R_4$  denotes  $H$ ,  $NH_2$ ,  $SO_3H$  or  $OSO_3H$ ,  $CH_2SO_3H$ ,  $CH_2OSO_3H$ ,  
 $NHSO_3H$

- I. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=NHSO_3H$   
is the same meaning as is before defined;
- II. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2SO_3H$   
is the same meaning as is before defined;
- III. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;
- IV. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=SO_3H$  is  
the same meaning as is before defined;
- V. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=OSO_3H$  is  
the same meaning as is before defined;
- VI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=NHSO_3H$   
is the same meaning as is before defined;
- VII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2SO_3H$   
is the same meaning as is before defined;
- VIII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;
- IX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=SO_3H$  is  
the same meaning as is before defined;
- X. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=OSO_3H$  is  
the same meaning as is before defined;
- XI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  
 $R_3=SO_3H$  is the same meaning as is before defined;
- XII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  
 $R_3=SO_3H$  is the same meaning as is before defined;
- XIII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  
 $R_4=SO_3H$  is the same meaning as is before defined;

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XIV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=NHISO_3H$  is the same meaning as is before defined;~~
- XVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~
- XVII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XVIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- XIX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- XX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XXI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XXII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XXIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XXIV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=NHISO_3H$  is the same meaning as is before defined;~~
- XXV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- XXVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XXVII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- XXVIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~



Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

~~XXIX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~

~~XXX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~

~~XXXI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~

~~XXXII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined.~~

9. (Currently Amended) Novel sSulfonic acid / sulfate derivatives of the compound of formulae  $ZOC-CR_5R_6-CR_3R_4-CR_1R_2-COOH$  as claimed in claim 3

~~I. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=NHISO_3H$  is the same meaning as is before defined;~~

~~II. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~

~~III. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~

~~IV. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~

~~V. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~

~~VI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~

~~VII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~

~~VIII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=NHISO_3H$  is the same meaning as is before defined;~~

~~IX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- X. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_3=NH_2$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- XII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XIV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XVI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XVII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XVIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XIX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=NHOSO_3H$  is the same meaning as is before defined;~~
- XX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~
- XXI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XXII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- XXIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- XXIV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XXV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- XXVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=NHSO_3H$  is the same meaning as is before defined;~~
- XXVII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- XXVIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XXIX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XXX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XXXI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XXXII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XXXIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XXXIV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XXXV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XXXVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined.~~
10. (Currently Amended) Novel ~~s~~Sulfonic acid / sulfate derivatives of the compound of formulae  ~~$ZOC-CR_7R_8-CR_3R_6-CR_3R_4-CR_1R_2-COOH$  as claimed in claim 4, wherein:~~  
 $Z=OH$  or  $NH_2$ ,  $R_1$  to  $R_8$  denotes  $H$ ,  $NH_2$ ,  $SO_3H$ , or  $OSO_3H$ ,  $CH_2SO_3H$ ,  $CH_2OSO_3H$ ,  $NHSO_3H$

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- I. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NHSO_3H$  is the same meaning as is before defined;
- II. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;
- III. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;
- IV. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;
- V. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;
- VI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NH_2$  is the same meaning as is before defined;
- VII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;
- VIII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;
- IX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;
- X. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;
- XI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;
- XII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;
- XIII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;
- XIV. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;
- XV. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XXVI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_3=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_5=OSO_3H$  is the same meaning as is before defined;
- XXVII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_4=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_6=SO_3H$  is the same meaning as is before defined;
- XXVIII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_4=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_6=OSO_3H$  is the same meaning as is before defined;
- XXIX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_3=R_6=R_5=R_8=H$ ,  $R_2=NH_2$ ,  $R_7=SO_3H$  is the same meaning as is before defined;
- XX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_4=R_1=R_3=R_6=R_5=R_8=H$ ,  $R_2=NH_2$ ,  $R_7=OSO_3H$  is the same meaning as is before defined;
- XXI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_4=R_7=R_6=H$ ,  $R_2=NH_2$ ,  $R_8=SO_3H$  is the same meaning as is before defined;
- XXII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_4=R_3=R_5=R_4=R_7=R_6=H$ ,  $R_2=NH_2$ ,  $R_8=OSO_3H$  is the same meaning as is before defined;
- XXIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NHISO_3H$  is the same meaning as is before defined;
- XXIV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;
- XXV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;
- XXVI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;
- XXVII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;
- XXVIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NHISO_3H$  is the same meaning as is before defined;
- XXIX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_4=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;
- XXX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_4=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- ~~XXXI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6$ ,  $R_7=R_8=H$ ,  $R_9=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXXII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXXIV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXXVI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXVII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXXVIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXIX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=OSO_3H$  is the same meaning as is before defined;~~
- ~~XL. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=SO_3H$  is the same meaning as is before defined;~~
- ~~XLI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=OSO_3H$  is the same meaning as is before defined;~~
- ~~XLII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=SO_3H$  is the same meaning as is before defined;~~
- ~~XLIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_9=NH_2$ ,  $R_{10}=OSO_3H$  is the same meaning as is before defined;~~

11. (Currently Amended) A [[C]] compound as claimed in claim 5, wherein said compound is a non-toxic salts salt selected from the group consisting of:
- I. [L-Aspartic acid, N-Sulfonic acid],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- II. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfonic acid],
- III. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfate],
- IV. [1 $\alpha$ ,2-carboxy ethane sulfonic acid],
- V. [1 $\alpha$ ,2-carboxy ethane sulfate],
- VI. [D-aspartic acid, N-sulfonic acid],
- VII. [2 $\beta$ ,3-carboxy,propane-1-sulfonic acid],
- VIII. [2 $\beta$ ,3-carboxy,propane-1-sulfate],
- IX. [1 $\beta$ ,2-carboxy ethane-1-sulfonic acid],
- X. [1 $\beta$ ,2-carboxy ethane-1-sulfate],
- XI. [D-aspartic acid, 3 $\alpha$ -sulfonic acid],
- XII. [D-aspartic acid, 3 $\alpha$ -sulfate],
- XIII. [D-aspartic acid, 3 $\beta$ -sulfonic acid],
- XIV. [D-aspartic acid, 3 $\beta$ -sulfate],
- XV. [L-asparagine,N-sulfonic acid],
- XVI. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVII. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XIX. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfate],
- XX. [L-asparagine, 3 $\alpha$ -sulfonic acid],
- XXI. [L-asparagine, 3 $\alpha$ -sulfate],
- XXII. [L-asparagine, 3 $\beta$ -sulfonic acid],
- XXIII. [L-asparagine, 3 $\beta$ -sulfate],
- XXIV. [D-asparagine, N-sulfonic acid],
- XXV. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXVI. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXVII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XXVIII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfate],
- XXIX. [D-asparagine, 3 $\alpha$ -sulfonic acid],
- XXX. [D-asparagine, 3 $\alpha$ -sulfate],
- XXXI. [D-asparagine, 3 $\beta$ -sulfonic acid],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XXXII. [D-asparagine, 3 $\beta$ -sulfate],
- XXXIII. [L-glutamic acid, N-sulfonic acid],
- XXXIV. [2 $\alpha$ ,4-dicarboxy, butane-1-sulfonic acid],
- XXXV. [2 $\alpha$ , 4-dicarboxy, butane-1-sulfate],
- XXXVI. [1 $\alpha$ , 3-dicarboxy, propane sulfonic acid],
- XXXVII. [1 $\alpha$ , 3-dicarboxy, propane sulfate],
- XXXVIII. [1 $\beta$ , 3-dicarboxy, propane sulfate], and
- XXXIX. [1 $\beta$ , 3-dicarboxy, propane sulfonic acid],[[.]]

12. (Currently Amended) A [[C]] compound as claimed in claim 6, wherein said compound is a non-toxic ~~salts~~ salt selected from the group consisting of:

- I. [D-glutamic acid, N-sulfonic acid],
- II. [2 $\beta$ , 4-dicarboxy, butane-1-sulfonic acid],
- III. [2 $\beta$ , 4-dicarboxy, butane-1-sulfate],
- IV. [D-glutamic acid, 3 $\alpha$ -sulfonic acid],
- V. [D-glutamic acid, 3 $\alpha$ -sulfate],
- VI. [D-glutamic acid, 3 $\beta$ -sulfonic acid],
- VII. [D-glutamic acid, 3 $\beta$ -sulfate],
- VIII. [D-glutamic acid, 4 $\alpha$ -sulfonic acid],
- IX. [D-glutamic acid, 4 $\alpha$ -sulfate],
- X. [D-glutamic acid, 4 $\beta$ -sulfonic acid],
- XI. [D-glutamic acid, 3 $\beta$ -sulfate],
- XII. [L-glutamine, N-sulfonic acid],
- XIII. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XIV. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XV. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVI. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XIX. [D-glutamine, N-sulfonic acid],



Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XX. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XXI. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XXII. [D-glutamine, 3 $\alpha$ -sulfonic acid],
- XXIII. [D-glutamine, 3 $\alpha$ -sulfate],
- XXIV. [D-glutamine, 3 $\beta$ -sulfonic acid],
- XXV. [D-glutamine, 3 $\beta$ -sulfate],
- XXVI. [D-glutamine, 4 $\alpha$ -sulfonic acid],
- XXVII. [D-glutamine, 4 $\alpha$ -sulfate],
- XXVIII. [D-glutamine, 4 $\beta$ -sulfonic acid],
- XXIX. [D-glutamine, 4 $\beta$ -sulfate],
- XXX. [L-homoglutamic acid, N-sulfonic acid],
- XXXI. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfonic acid],
- XXXII. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfate],
- XXXIII. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfonic acid],
- XXXIV. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfate],
- XXXV. [D-homoglutamic acid, N-sulfonic acid],
- XXXVI. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfonic acid],
- XXXVII. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfate],
- XXXVIII. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfonic acid], and
- XXXIX. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfate],<sub>[[.]]</sub>

13. (Currently Amended) A [[C]] compound as claimed in claim 7, wherein said compound is a non-toxic salts salt selected from the group consisting of:

- I. [D-homoglutamic acid, 3 $\alpha$ -sulfonic acid],
- II. [D-homoglutamic acid, 3 $\alpha$ -sulfate],
- III. [D-homoglutamic acid, 3 $\beta$ -sulfonic acid],
- IV. [D-homoglutamic acid, 3 $\beta$ -sulfate],
- V. [D-homoglutamic acid, 4 $\alpha$ -sulfonic acid],
- VI. [D-homoglutamic acid, 4 $\alpha$ -sulfate],
- VII. [D-homoglutamic acid, 4 $\beta$ -sulfonic acid],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- VIII. [D-homoglutamic acid, 4 $\beta$ -sulfate],
  - IX. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
  - X. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
  - XI. [D-homoglutamic acid, 5 $\beta$ -sulfonic acid],
  - XII. [D-homoglutamic acid, 5 $\beta$ -sulfate],
  - XIII. [L-homoglutamine, N-sulfonic acid],
  - XIV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfonic acid],
  - XV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfate],
  - XVI. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfonic acid],
  - XVII. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfate],
  - XVIII. [D-homoglutamine, N-sulfonic acid],
  - XIX. [Pentane-2 $\beta$ -carboxy, 5-carboxamido-1-sulfonic acid],
  - XX. [Butane-1  $\beta$ -carboxy, 4-carboxamido-1-sulfonic acid],
  - XXI. [Butane-1  $\beta$ -carboxy, 4-carboxamido-1-sulfate],
  - XXII. [D-homoglutamine, 3 $\alpha$ -sulfonic acid],
  - XXIII. [D-homoglutamine, 3 $\alpha$ -sulfate],
  - XXIV. [D-homoglutamine, 3 $\beta$ -sulfonic acid],
  - XXV. [D-homoglutamine, 3 $\beta$ -sulfate],
  - XXVI. [D-homoglutamine, 4 $\alpha$ -sulfonic acid],
  - XXVII. [D-homoglutamine, 4 $\alpha$ -sulfate],
  - XXVIII. [D-homoglutamine, 4 $\beta$ -sulfonic acid],
  - XXIX. [D-homoglutamine, 4 $\beta$ -sulfate],
  - XXX. [D-homoglutamine, 5 $\alpha$ -sulfonic acid],
  - XXXI. [D-homoglutamine, 5 $\alpha$ -sulfate],
  - XXXII. [D-homoglutamine, 5 $\beta$ -sulfonic acid], and
  - XXXIII. [D-homoglutamine, 5 $\beta$ -sulfate].
14. (Currently Amended) A compound as claimed in claim 11, wherein said compound is selected from the group consisting of ~~aspartic acid, asparagine and corresponding de-amino analogs~~:

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- I. [L-Aspartic acid, N-Sulfonic acid],
- II. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfonic acid],
- III. [2 $\alpha$ ,3-dicarboxy, propano-1-sulfate],
- IV. [1 $\alpha$ ,2-carboxy ethane sulfonic acid],
- V. [1 $\alpha$ ,2-carboxy ethane sulfate],
- VI. [D-aspartic acid, N-sulfonic acid],
- VII. [2 $\beta$ ,3-carboxy,propane-1-sulfonic acid],
- VIII. [2 $\beta$ ,3-carboxy,propane-1-sulfate],
- IX. [1 $\beta$ ,2-carboxy ethane-1-sulfonic acid],
- X. [1 $\beta$ ,2-carboxy ethane-1-sulfate],
- XI. [D-aspartic acid, 3 $\alpha$ -sulfonic acid],
- XII. [D-aspartic acid, 3 $\alpha$ -sulfate],
- XIII. [D-aspartic acid, 3 $\beta$ -sulfonic acid],
- XIV. [D-aspartic acid, 3 $\beta$ -sulfate],
- XV. [L-asparagine,N-sulfonic acid],
- XVI. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVII. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XIX. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfate],
- XX. [L-asparagine, 3 $\alpha$ -sulfonic acid],
- XXI. [L-asparagine, 3 $\alpha$ -sulfate],
- XXII. [L-asparagine, 3 $\beta$ -sulfonic acid],
- XXIII. [L-asparagine, 3 $\beta$ -sulfate],
- XXIV. [D-asparagine, N-sulfonic acid],
- XXV. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXVI. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXVII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XXVIII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfate],
- XXIX. [D-asparagine, 3 $\alpha$ -sulfonic acid],
- XXX. [D-asparagine, 3 $\alpha$ -sulfate],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XXXI. [D-asparagine, 3 $\beta$ -sulfonic acid], and  
XXXII. [D-asparagine, 3 $\beta$ -sulfate].[[,]]

15. (Currently Amended) A compound as claimed in claim 12, wherein said compound is selected from the group consisting of glutamic acid, ~~glutamine and corresponding de-amino analogs~~:
- I. [L-glutamic acid, N-sulfonic acid],
  - II. [2 $\alpha$ ,4-dicarboxy, butane-1-sulfonic acid],
  - III. [2 $\alpha$ , 4-dicarboxy, butane-1-sulfate],
  - IV. [1 $\alpha$ , 3-dicarboxy, propane sulfonic acid],
  - V. [1 $\alpha$ , 3-dicarboxy, propane sulfate],
  - VI. [1 $\beta$ , 3-dicarboxy, propane sulfate],
  - VII. [1 $\beta$ , 3-dicarboxy, propane sulfonic acid],
  - VIII. [D-glutamic acid, N-sulfonic acid],
  - IX. [2 $\beta$ , 4-dicarboxy, butane-1-sulfonic acid],
  - X. [2 $\beta$ , 4-dicarboxy, butane-1-sulfate],
  - XI. [D-glutamic acid, 3 $\alpha$ -sulfonic acid],
  - XII. [D-glutamic acid, 3 $\alpha$ -sulfate],
  - XIII. [D-glutamic acid, 3 $\beta$ -sulfonic acid],
  - XIV. [D-glutamic acid, 3 $\beta$ -sulfate],
  - XV. [D-glutamic acid, 4 $\alpha$ -sulfonic acid],
  - XVI. [D-glutamic acid, 4 $\alpha$ -sulfate],
  - XVII. [D-glutamic acid, 4 $\beta$ -sulfonic acid],
  - XVIII. [D-glutamic acid, 3 $\beta$ -sulfate],
  - XIX. [L-glutamine, N-sulfonic acid],
  - XX. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
  - XXI. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfate],
  - XXII. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
  - XXIII. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
  - XXIV. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XXV. [1 $\beta$ -carboxy, 3-carboxamido, propano-1-sulfonic acid],
- XXVI. [D-glutamine, N-sulfonic acid],
- XXVII. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XXVIII. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XXIX. [D-glutamine, 3 $\alpha$ -sulfonic acid],
- XXX. [D-glutamine, 3 $\alpha$ -sulfate],
- XXXI. [D-glutamine, 3 $\beta$ -sulfonic acid],
- XXXII. [D-glutamine, 3 $\beta$ -sulfate],
- XXXIII. [D-glutamine, 4 $\alpha$ -sulfonic acid],
- XXXIV. [D-glutamine, 4 $\alpha$ -sulfate],
- XXXV. [D-glutamine, 4 $\beta$ -sulfonic acid],
- XXXVI. [D-glutamine, 4 $\beta$ -sulfate],
- XXXVII. [L-homoglutamic acid, N-sulfonic acid],
- XXXVIII. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfonic acid],
- XXXIX. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfate],
- XI. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfonic acid], and
- XLI. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfate][[.]].

16. (Currently Amended) A compound as claimed in claim 13, wherein said compound is selected from the group consisting of homoglutamic acid, ~~homoglutamine and corresponding de-amino analogs~~:

- I. [D-homoglutamic acid, N-sulfonic acid],
- II. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfonic acid],
- III. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfate],
- IV. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfonic acid],
- V. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfate],
- VI. [D-homoglutamic acid, 3 $\alpha$ -sulfonic acid],
- VII. [D-homoglutamic acid, 3 $\alpha$ -sulfate],
- VIII. [D-homoglutamic acid, 3 $\beta$ -sulfonic acid],
- IX. [D-homoglutamic acid, 3 $\beta$ -sulfate],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- X. [D-homoglutamic acid, 4 $\alpha$ -sulfonic acid],
- XI. [D-homoglutamic acid, 4 $\alpha$ -sulfate],
- XII. [D-homoglutamic acid, 4 $\beta$ -sulfonic acid],
- XIII. [D-homoglutamic acid, 4 $\beta$ -sulfate],
- XIV. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- XV. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- XVI. [D-homoglutamic acid, 5 $\beta$ -sulfonic acid],
- XVII. [D-homoglutamic acid, 5 $\beta$ -sulfate],
- XVIII. [L-homoglutamine, N-sulfonic acid],
- XIX. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XX. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfate],
- XXI. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfonic acid],
- XXII. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfate],
- XXIII. [D-homoglutamine, N-sulfonic acid],
- XXIV. [Pentane-2 $\beta$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XXV. [Butane-1  $\beta$  -carboxy, 4-carboxamido-1-sulfonic acid],
- XXVI. [Butane-1  $\beta$  -carboxy, 4-carboxamido-1-sulfate],
- XXVII. [D-homoglutamine, 3 $\alpha$ -sulfonic acid],
- XXVIII. [D-homoglutamine, 3 $\alpha$ -sulfate],
- XXIX. [D-homoglutamine, 3 $\beta$ -sulfonic acid],
- XXX. [D-homoglutamine, 3 $\beta$ -sulfate],
- XXXI. [D-homoglutamine, 4 $\alpha$ -sulfonic acid],
- XXXII. [D-homoglutamine, 4 $\alpha$ -sulfate],
- XXXIII. [D-homoglutamine, 4 $\beta$ -sulfonic acid],
- XXXIV. [D-homoglutamine, 4 $\beta$ -sulfate],
- XXXV. [D-homoglutamine, 5 $\alpha$ -sulfonic acid],
- XXXVI. [D-homoglutamine, 5 $\alpha$ -sulfate],
- XXXVII. [D-homoglutamine, 5 $\beta$ -sulfonic acid], and
- XXXVIII. [D-homoglutamine, 5 $\beta$ -sulfate].

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

17. (Currently Amended) A compound as claimed in claim 1, wherein incubation of BM leukocyte precursors with different concentrations of the ~~synthetic~~ compound increases the cell surface densities of CD11c, CD80, CD54 and CD11c to various levels with maximum up regulation at 200 mM.
18. (Currently Amended) A compound as claimed in claim 1, wherein it the compound gives the fold increase in the levels of molecules of cells stimulated with either 15 ng/ml of GM-CSF or 200 mM of the ~~synthetic~~ compound at 48 h of incubation.
19. (Currently Amended) A compound as claimed in claim 1, wherein the viability of the cultures is more than 99% at the end of the incubation period at this concentration of the ~~synthetic~~ compound.
20. (Currently Amended) A compound as claimed in claim 1, ~~useful to induce~~ wherein the compound is capable of inducing differentiation of dendritic cells and modulation of immune response controlled by dendritic ~~cell~~ cells.
21. (Currently Amended) A ~~compound as claimed in claim 1, useful in~~ vaccine formulation comprising a compound of Claim 1, wherein the compound is capable of to prevent providing more efficient and faster presentation of antigens to T-cells, thereby ~~initiate~~ initiating primary protective Th1 immune response and help helping in the clearance of the pathogen.

Claims 22-28 (Cancelled)

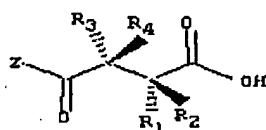
29. (Currently Amended) A ~~[[P]]~~ pharmaceutical composition comprising ~~[[the]]~~ an effective amount of a compound selected from the general formula  $Z-OC(C_{n1}R_{n2})-CO-Z$  wherein  $Z = OH$  or  $NH_2$  and  $n1 = n2 = 1$  to  $8$ , wherein one R in the compound is selected from the group consisting of  $SO_3H$ ,  $OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ , and  $NHISO_3H$ .

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

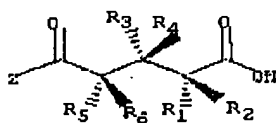
and the remaining Rs are H or NH<sub>2</sub>, and salts thereof, along with an additive, excipient, diluents or carrier.

30. (Currently Amended) A composition as claimed in claim 29, wherein said compound useful is capable of being used in vaccine formulation to prevent provide more efficient and faster presentation of antigens to T-cells, thereby initiate initiating primary protective Th1 immune response and help helping in the clearance of the pathogen.
31. (Currently Amended) A composition as claimed in claim 29, wherein said compound ~~having a structure as herein and bearing~~ is a compound of Claim 2 ~~general formula~~  $ZOC-CR_3R_4-CR_1R_2-COOH$  ~~wherein: Z=OH or NH<sub>2</sub>; R<sub>1</sub> to R<sub>4</sub> denotes H, NH<sub>2</sub>, SO<sub>3</sub>H, or OSO<sub>3</sub>H; CH<sub>2</sub>-SO<sub>3</sub>H; CH<sub>2</sub>-OSO<sub>3</sub>H; NHSO<sub>3</sub>H~~



Structure 1

32. (Currently Amended) A composition as claimed in claim 29, wherein said compound ~~having a structure as herein and bearing~~ is a compound of Claim 3 ~~structure as shown below and bears the general formula~~  $ZOC-CR_5R_6-CR_3R_4-CR_1R_2-COOH$  ~~wherein: Z=OH or NH<sub>2</sub>; R<sub>1</sub> to R<sub>6</sub> denotes H, NH<sub>2</sub>, SO<sub>3</sub>H, or OSO<sub>3</sub>H; CH<sub>2</sub>-SO<sub>3</sub>H; CH<sub>2</sub>-OSO<sub>3</sub>H; or NHSO<sub>3</sub>H~~



Structure 2

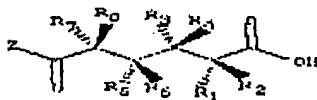
33. (Currently Amended) A composition as claimed in claim 29, wherein said compound ~~having a structure as herein and bearing~~ is a compound of Claim 4 ~~general formula~~  $ZOC-$



Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

$\text{CR}_7\text{R}_8\text{-CR}_5\text{R}_6\text{-CR}_3\text{R}_4\text{-CR}_1\text{R}_2\text{-COOH}$  wherein: Z=OH or  $\text{NH}_2$ ,  $\text{R}_1$  to  $\text{R}_8$  denotes H,  $\text{NH}_2$ ,  $\text{SO}_3\text{H}$ , or  $\text{OSO}_3\text{H}$ ,  $\text{CH}_2\text{-SO}_3\text{H}$ ,  $\text{CH}_2\text{-OSO}_3\text{H}$ ,  $\text{NHISO}_3\text{H}$



STRUCTURE 3

34. (Currently Amended) A composition as claimed in claim 29, wherein said compound [[in]] is non-toxic to monocytes.
35. (Currently Amended) A composition as claimed in claim 29, wherein said compound [[in]] is non-toxic to macrophages.
36. (Currently Amended) A composition as claimed in claim 29, ~~wherein additives are~~ wherein the composition further comprises an additive comprising different divalent metal cations such as Mg, Ca and Zn.
37. (Currently Amended) A composition as claimed in claim 29, ~~wherein additives are~~ wherein the composition further comprises an additive comprising amino acid/dicarboxylic acid derivatives and their pharmaceutically acceptable selected alkali/alkaline earth metal salts.
38. (Currently Amended) A composition as claimed in claim ~~[[29]]~~31, wherein the compound is selected from the group consisting of:
- I. [L- Aspartic acid, N-Sulfonic acid],
  - II. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfonic acid],
  - III. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfate],
  - IV. [1 $\alpha$ ,2-carboxy ethane sulfonic acid],
  - V. [1 $\alpha$ ,2-carboxy ethane sulfate],
  - VI. [D-aspartic acid, N-sulfonic acid],
  - VII. [2 $\beta$ ,3-carboxy,propane-1-sulfonic acid],

- 26 -

WINSTON 15646-14v1

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- VIII. [2 $\beta$ ,3-carboxy,propane-1-sulfate],  
IX. [1 $\beta$ ,2-carboxy ethane-1-sulfonic acid],  
X. [1 $\beta$ ,2-carboxy ethane-1-sulfate],  
XI. [D-aspartic acid, 3 $\alpha$ -sulfonic acid],  
XII. [D-aspartic acid, 3 $\alpha$ -sulfate],  
XIII. [D-aspartic acid, 3 $\beta$ -sulfonic acid],  
XIV. [D-aspartic acid, 3 $\beta$ -sulfate],  
XV. [L-asparagine,N-sulfonic acid],  
XVI. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],  
XVII. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],  
XVIII. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfonic acid],  
XIX. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfate],  
XX. [L-asparagine, 3 $\alpha$ -sulfonic acid],  
XXI. [L-asparagine, 3 $\alpha$ -sulfate],  
XXII. [L-asparagine, 3 $\beta$ -sulfonic acid],  
XXIII. [L-asparagine, 3 $\beta$ -sulfate],  
XXIV. [D-asparagine, N-sulfonic acid],  
XXV. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],  
XXVI. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],  
XXVII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfonic acid],  
XXVIII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfate],  
XXIX. [D-asparagine, 3 $\alpha$ -sulfonic acid],  
XXX. [D-asparagine, 3 $\alpha$ -sulfate],  
XXXI. [D-asparagine, 3 $\beta$ -sulfonic acid],  
XXXII. [D-asparagine, 3 $\beta$ -sulfate],  
XXXIII. [L-glutamic acid, N-sulfonic acid],  
XXXIV. [2 $\alpha$ ,4-dicarboxy, butane-1-sulfonic acid],  
XXXV. [2 $\alpha$ , 4-dicarboxy, butane-1-sulfate],  
XXXVI. [1 $\alpha$ , 3-dicarboxy, propane sulfonic acid],  
XXXVII. [1 $\alpha$ , 3-dicarboxy, propane sulfate],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

XXXVIII. [1 $\beta$ , 3-dicarboxy, propane sulfate], and

XXXIX. [1 $\beta$ , 3-dicarboxy, propane sulfonic acid].[.].]

39. (Currently Amended) A composition as claimed in claim 29 32, wherein the compound is selected from the group consisting of:

- I. [D-glutamic acid, N-sulfonic acid],
- II. 2 $\beta$ , 4-dicarboxy, butane-1-sulfonic acid],
- III. [2 $\beta$ , 4-dicarboxy, butane-1-sulfate],
- IV. [D-glutamic acid, 3 $\alpha$ -sulfonic acid],
- V. [D-glutamic acid, 3 $\alpha$ -sulfate],
- VI. [D-glutamic acid, 3 $\beta$ -sulfonic acid],
- VII. [D-glutamic acid, 3 $\beta$ -sulfate],
- VIII. [D-glutamic acid, 4 $\alpha$ -sulfonic acid],
- IX. [D-glutamic acid, 4 $\alpha$ -sulfate],
- X. [D-glutamic acid, 4 $\beta$ -sulfonic acid],
- XI. [D-glutamic acid, 3 $\beta$ -sulfate],
- XII. [L-glutamine, N-sulfonic acid],
- XIII. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XIV. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XV. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVI. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XIX. [D-glutamine, N-sulfonic acid],
- XX. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XXI. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XXII. [D-glutamine, 3 $\alpha$ -sulfonic acid],
- XXIII. [D-glutamine, 3 $\alpha$ -sulfate],
- XXIV. [D-glutamine, 3 $\beta$ -sulfonic acid],
- XXV. [D-glutamine, 3 $\beta$ -sulfate],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XXVI. [D-glutamine, 4 $\alpha$ -sulfonic acid],
- XXVII. [D-glutamine, 4 $\alpha$ -sulfate],
- XXVIII. [D-glutamine, 4 $\beta$ -sulfonic acid],
- XXIX. [D-glutamine, 4 $\beta$ -sulfate],
- XXX. [L-homoglutamic acid, N-sulfonic acid],
- XXXI. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfonic acid],
- XXXII. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfate],
- XXXIII. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfonic acid],
- XXXIV. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfate],
- XXXV. [D-homoglutamic acid, N-sulfonic acid],
- XXXVI. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfonic acid],
- XXXVII. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfate],
- XXXVIII. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfonic acid], and
- XXXIX. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfate]; and

40. (Currently Amended) A composition as claimed in claim 29 33, wherein the compound is selected from the group consisting of:

- I. [D-homoglutamic acid, 3 $\alpha$ -sulfonic acid],
- II. [D-homoglutamic acid, 3 $\alpha$ -sulfate],
- III. [D-homoglutamic acid, 3 $\beta$ -sulfonic acid],
- IV. [D-homoglutamic acid, 3 $\beta$ -sulfate],
- V. [D-homoglutamic acid, 4 $\alpha$ -sulfonic acid],
- VI. [D-homoglutamic acid, 4 $\alpha$ -sulfate],
- VII. [D-homoglutamic acid, 4 $\beta$ -sulfonic acid],
- VIII. [D-homoglutamic acid, 4 $\beta$ -sulfate],
- IX. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- X. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- XI. [D-homoglutamic acid, 5 $\beta$ -sulfonic acid],
- XII. [D-homoglutamic acid, 5 $\beta$ -sulfate],
- XIII. [L-homoglutamine, N-sulfonic acid],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- XIV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfate],
- XVI. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfonic acid],
- XVII. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfate],
- XVIII. [D-homoglutamine, N-sulfonic acid],
- XIX. [Pentane-2 $\beta$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XX. [Butane-1  $\beta$ -carboxy, 4-carboxamido-1-sulfonic acid],
- XXI. [Butane-1  $\beta$ -carboxy, 4-carboxamido-1-sulfate],
- XXII. [D-homoglutamine, 3 $\alpha$ -sulfonic acid],
- XXIII. [D-homoglutamine, 3 $\alpha$ -sulfate],
- XXIV. [D-homoglutamine, 3 $\beta$ -sulfonic acid],
- XXV. [D-homoglutamine, 3 $\beta$ -sulfate],
- XXVI. [D-homoglutamine, 4 $\alpha$ -sulfonic acid],
- XXVII. [D-homoglutamine, 4 $\alpha$ -sulfate],
- XXVIII. [D-homoglutamine, 4 $\beta$ -sulfonic acid],
- XXIX. [D-homoglutamine, 4 $\beta$ -sulfate],
- XXX. [D-homoglutamine, 5 $\alpha$ -sulfonic acid],
- XXXI. [D-homoglutamine, 5 $\alpha$ -sulfate],
- XXXII. [D-homoglutamine, 5 $\beta$ -sulfonic acid], and
- XXXIII. [D-homoglutamine, 5 $\beta$ -sulfate].

41. (Currently Amended) A composition as claimed in claim 29, ~~wherein novel 31, wherein~~  
the compound is a sulfonic acid / sulfato derivatives derivative of the compound of Claim  
2, formulae  $Z-OC-CR_3R_4-CR_1R_2-COOH$  wherein:  $Z=OH$  or  $-NH_2$ ,  $R_1$ , to  $R_4$  denotes  $H$ ,  
 $NH_2$ ,  $SO_3H$ , or  $-OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ ,  $NHSO_3H$

~~I. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=NHSO_3H$~~   
~~is the same meaning as is before defined;~~

~~II. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2SO_3H$~~   
~~is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- III. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~
- IV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- V. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- VI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=NH_2SO_3H$  is the same meaning as is before defined;~~
- VII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- VIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- IX. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- X. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- XI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XIV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=(OSO_3H)$  is the same meaning as is before defined;~~
- XV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=NH_2SO_3H$  is the same meaning as is before defined;~~
- XVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~
- XVII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- ~~XXVII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- ~~XXIX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- ~~XX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- ~~XXI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_3=NH_2$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- ~~XXIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXIV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=NHSO_3H$  is the same meaning as is before defined;~~
- ~~XXV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- ~~XXVI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- ~~XXVII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- ~~XXVIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXIX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- ~~XXX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXXI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined.~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

42. (Currently Amended) A composition as claimed in claim 29, ~~wherein novel 32, wherein the compound is a sulfonic acid / sulfate derivatives derivative of the compound of Claim 3~~ formulae  ~~$ZOC-CR_5R_6-CR_3R_4-CR_1R_2-COOH$ , wherein:  $Z=OH$  or  $NH_2$ ,  $R_1$ , to  $R_6$  denotes  $H$ ,  $NH_2$ ,  $SO_3H$ , or  $OSO_3H$ ,  $CH_2-SO_3H$ ,  $CH_2-OSO_3H$ ,  $NHSO_3H$ ,~~
- I. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=NHSO_3H$  is the same meaning as is before defined;~~
- II. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~
- III. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~
- IV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- V. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- VI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- VII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- VIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=NHSO_3H$  is the same meaning as is before defined;~~
- IX. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- X. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~



Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- XIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XIV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XVI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XVII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XVIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XIX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=NHOSO_3H$  is the same meaning as is before defined;~~
- XX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~
- XXI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~
- XXII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- XXIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- XXIV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- XXV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- XXVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=NHOSO_3H$  is the same meaning as is before defined;~~
- XXVII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

XXVII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~

XXIX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~

XXX. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~

XXXI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~

XXXII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~

XXXIII. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~

XXXIV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~

XXXV. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~

XXXVI. ~~A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_5=R_6=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~

43. (Currently Amended) A composition as claimed in claim 29, ~~wherein novel 33, wherein the compound is a sulfonic acid / sulfate derivatives derivative of the compound of Claim 4~~ formulae  $ZOG-CR_7R_8-CR_5R_6-CR_3R_4-CR_1R_2-COOH$ , wherein:  $Z=OH$  or  $NH_2$ ,  $R_1$  to  $R_8$  denotes  $H$ ,  $NH_2$ ,  $SO_3H$ , or  $OSO_3H$ ,  $CH_2SO_3H$ ,  $CH_3OSO_3H$ ,  $NHISO_3H$

I. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NHISO_3H$  is the same meaning as is before defined;~~

II. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~

III. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- IV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- V. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- VI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$  is the same meaning as is before defined;~~
- VII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- VIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=CH_2OSO_3H$  is the same meaning as is before defined;~~
- IX. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- X. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- XI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XIV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~
- XV. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- XVI. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_3=OSO_3H$  is the same meaning as is before defined;~~
- XVII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_4=SO_3H$  is the same meaning as is before defined;~~
- XVIII. ~~A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_4=OSO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

- ~~XIX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_3=R_6=R_5=R_8=H$ ,  $R_2=NH_2$ ,  $R_7=SO_3H$  is the same meaning as is before defined;~~
- ~~XX. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_4=R_3=R_6=R_5=R_8=H$ ,  $R_2=NH_2$ ,  $R_7=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXI. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_4=R_7=R_6=H$ ,  $R_2=NH_2$ ,  $R_8=SO_3H$  is the same meaning as is before defined;~~
- ~~XXII. A compound as claimed in claim 1, wherein  $Z=OH$ ,  $R_1=R_3=R_5=R_4=R_7=R_6=H$ ,  $R_2=NH_2$ ,  $R_8=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=NHSO_3H$  is the same meaning as is before defined;~~
- ~~XXIV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2SO_3H$  is the same meaning as is before defined;~~
- ~~XXV. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=CH_2OSO_3H$  is the same meaning as is before defined;~~
- ~~XXVI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=SO_3H$  is the same meaning as is before defined;~~
- ~~XXVII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_2=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_1=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXVIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NHSO_3H$  is the same meaning as is before defined;~~
- ~~XXIX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=CH_2SO_3H$  is the same meaning as is before defined;~~
- ~~XXX. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXI. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_3=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~
- ~~XXXII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_2=NH_2$ ,  $R_3=SO_3H$  is the same meaning as is before defined;~~
- ~~XXXIII. A compound as claimed in claim 1, wherein  $Z=NH_2$ ,  $R_1=R_4=R_5=R_6=R_7=R_8=H$ ,  $R_3=NH_2$ ,  $R_2=OSO_3H$  is the same meaning as is before defined;~~

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

~~XXXIV. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_3 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_4 = \text{SO}_3\text{H}$  is the same meaning as is before defined;~~~~XXXV. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_3 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_4 = \text{OSO}_3\text{H}$  is the same meaning as is before defined;~~~~XXXVI. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_4 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_3 = \text{SO}_3\text{H}$  is the same meaning as is before defined;~~~~XXXVII. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_4 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_3 = \text{OSO}_3\text{H}$  is the same meaning as is before defined;~~~~XXXVIII. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_3 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_4 = \text{SO}_3\text{H}$  is the same meaning as is before defined;~~~~XXXIX. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_3 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_4 = \text{OSO}_3\text{H}$  is the same meaning as is before defined;~~~~XL. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_4 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_3 = \text{SO}_3\text{H}$  is the same meaning as is before defined;~~~~XLI. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_4 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_3 = \text{OSO}_3\text{H}$  is the same meaning as is before defined;~~~~XLI. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_3 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_4 = \text{SO}_3\text{H}$  is the same meaning as is before defined;~~~~XLIII. A compound as claimed in claim 1, wherein  $Z = \text{NH}_2$ ,  $R_1 = R_3 = R_5 = R_6 = R_7 = R_8 = \text{H}$ ,~~ ~~$R_2 = \text{NH}_2$ ,  $R_4 = \text{OSO}_3\text{H}$  is the same meaning as is before defined;~~

44. (Currently Amended) A composition as claimed in claim [[29]]38, wherein said compound is non-toxic salts selected from the group consisting of:

- I. [L- Aspartic acid, N-Sulfonic acid],
- II. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfonic acid],
- III. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfate],
- IV. [1 $\alpha$ ,2-carboxy ethane sulfonic acid],
- V. [1 $\alpha$ ,2-carboxy ethane sulfate],
- VI. [D-aspartic acid, N-sulfonic acid],
- VII. [2 $\beta$ ,3-carboxy,propane-1-sulfonic acid],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- VIII. [2 $\beta$ ,3-carboxy,propane-1-sulfate],
- IX. [1 $\beta$ ,2-carboxy ethane-1-sulfonic acid],
- X. [1 $\beta$ ,2-carboxy ethane-1-sulfate],
- XI. [D-aspartic acid, 3 $\alpha$ -sulfonic acid],
- XII. [D-aspartic acid, 3 $\alpha$ -sulfate],
- XIII. [D-aspartic acid, 3 $\beta$ -sulfonic acid],
- XIV. [D-aspartic acid, 3 $\beta$ -sulfate],
- XV. [L-asparagine,N-sulfonic acid],
- XVI. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVII. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XIX. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfate],
- XX. [L-asparagine, 3 $\alpha$ -sulfonic acid],
- XXI. [L-asparagine, 3 $\alpha$ -sulfate],
- XXII. [L-asparagine, 3 $\beta$ -sulfonic acid],
- XXIII. [L-asparagine, 3 $\beta$ -sulfate],
- XXIV. [D-asparagine, N-sulfonic acid],
- XXV. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXVI. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXVII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XXVIII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfate],
- XXIX. [D-asparagine, 3 $\alpha$ -sulfonic acid],
- XXX. [D-asparagine, 3 $\alpha$ -sulfate],
- XXXI. [D-asparagine, 3 $\beta$ -sulfonic acid],
- XXXII. [D-asparagine, 3 $\beta$ -sulfate],
- XXXIII. [L-glutamic acid, N-sulfonic acid],
- XXXIV. [2 $\alpha$ ,4-dicarboxy, butane-1-sulfonic acid],
- XXXV. [2 $\alpha$ , 4-dicarboxy, butane-1-sulfate],
- XXXVI. [1 $\alpha$ , 3-dicarboxy, propane sulfonic acid],
- XXXVII. [1 $\alpha$ , 3-dicarboxy, propano sulfate],

Application No. 10/748,844

Response to Restriction Requirement mailed July 26, 2005

XXXVIII. [1 $\beta$ , 3-dicarboxy, propane sulfate], andXXXIX. [1 $\beta$ , 3-dicarboxy, propane sulfonic acid],[.]]

45. (Currently Amended) A composition as claimed in claim ~~[[29]]~~39, wherein said compound is ~~non-toxic salts selected from the group consisting of:~~

- I. [D-glutamic acid, N-sulfonic acid],
- II. [2 $\beta$ , 4-dicarboxy, butane-1-sulfonic acid],
- III. [2 $\beta$ , 4-dicarboxy, butane-1-sulfate],
- IV. [D-glutamic acid, 3 $\alpha$ -sulfonic acid],
- V. [D-glutamic acid, 3 $\alpha$ -sulfate],
- VI. [D-glutamic acid, 3 $\beta$ -sulfonic acid],
- VII. [D-glutamic acid, 3 $\beta$ -sulfate],
- VIII. [D-glutamic acid, 4 $\alpha$ -sulfonic acid],
- IX. [D-glutamic acid, 4 $\alpha$ -sulfate],
- X. [D-glutamic acid, 4 $\beta$ -sulfonic acid],
- XI. [D-glutamic acid, 3 $\beta$ -sulfate],
- XII. [L-glutamine, N-sulfonic acid],
- XIII. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XIV. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XV. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVI. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XIX. [D-glutamine, N-sulfonic acid],
- XX. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XXI. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XXII. [D-glutamine, 3 $\alpha$ -sulfonic acid],
- XXIII. [D-glutamine, 3 $\alpha$ -sulfate],
- XXIV. [D-glutamine, 3 $\beta$ -sulfonic acid],
- XXV. [D-glutamine, 3 $\beta$ -sulfate],

- 40 -

WINSTON 1564644v1

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- XXVI. [D-glutamine, 4 $\alpha$ -sulfonic acid],  
XXVII. [D-glutamine, 4 $\alpha$ -sulfate],  
XXVIII. [D-glutamine, 4 $\beta$ -sulfonic acid],  
XXIX. [D-glutamine, 4 $\beta$ -sulfate],  
XXX. [L-homoglutamic acid, N-sulfonic acid],  
XXXI. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfonic acid],  
XXXII. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfate],  
XXXIII. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfonic acid],  
XXXIV. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfate],  
XXXV. [D-homoglutamic acid, N-sulfonic acid],  
XXXVI. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfonic acid],  
XXXVII. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfate],  
XXXVIII. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfonic acid], and  
XXXIX. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfate].[[.]]

[[45]]46. (Currently Amended) A composition as claimed in claim [[29]]40, wherein said compound is ~~non-toxic salts~~ selected from the group consisting of:

- I. [D-homoglutamic acid, 3 $\alpha$ -sulfonic acid],
- II. [D-homoglutamic acid, 3 $\alpha$ -sulfate],
- III. [D-homoglutamic acid, 3 $\beta$ -sulfonic acid],
- IV. [D-homoglutamic acid, 3 $\beta$ -sulfate],
- V. [D-homoglutamic acid, 4 $\alpha$ -sulfonic acid],
- VI. [D-homoglutamic acid, 4 $\alpha$ -sulfate],
- VII. [D-homoglutamic acid, 4 $\beta$ -sulfonic acid],
- VIII. [D-homoglutamic acid, 4 $\beta$ -sulfate],
- IX. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- X. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- XI. [D-homoglutamic acid, 5 $\beta$ -sulfonic acid],
- XII. [D-homoglutamic acid, 5 $\beta$ -sulfate],
- XIII. [L-homoglutamine, N-sulfonic acid],



Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- XIV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XV. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfate],
- XVI. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfonic acid],
- XVII. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfate],
- XVIII. [D-homoglutamine, N-sulfonic acid],
- XIX. [Pentane-2 $\beta$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XX. [Butane-1  $\beta$  -carboxy, 4-carboxamido-1-sulfonic acid],
- XXI. [Butane-1  $\beta$  -carboxy, 4-carboxamido-1-sulfate],
- XXII. [D-homoglutamine, 3 $\alpha$ -sulfonic acid],
- XXIII. [D-homoglutamine, 3 $\alpha$ -sulfate],
- XXIV. [D-homoglutamine, 3 $\beta$ -sulfonic acid],
- XXV. [D-homoglutamine, 3 $\beta$ -sulfate],
- XXVI. [D-homoglutamine, 4 $\alpha$ -sulfonic acid],
- XXVII. [D-homoglutamine, 4 $\alpha$ -sulfate],
- XXVIII. [D-homoglutamine, 4 $\beta$ -sulfonic acid],
- XXIX. [D-homoglutamine, 4 $\beta$ -sulfate],
- XXX. [D-homoglutamine, 5 $\alpha$ -sulfonic acid],
- XXXI. [D-homoglutamine, 5 $\alpha$ -sulfate],
- XXXII. [D-homoglutamine, 5 $\beta$ -sulfonic acid], and
- XXXIII. [D-homoglutamine, 5 $\beta$ -sulfate].

[[46]]47. (Currently Amended) A composition as claimed in claim [[29]]44, wherein said compound is selected from the group consisting of ~~aspartic acid, asparagine and corresponding de-amino analogs:~~

- I. [L- Aspartic acid, N-Sulfonic acid],
- II. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfonic acid],
- III. [2 $\alpha$ ,3-dicarboxy, propane-1-sulfate],
- IV. [1 $\alpha$ ,2-carboxy ethane sulfonic acid],
- V. [1 $\alpha$ ,2-carboxy ethane sulfate],
- VI. [D-aspartic acid, N-sulfonic acid],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- VII. [2 $\beta$ ,3-carboxy,propane-1-sulfonic acid],
- VIII. [2 $\beta$ ,3-carboxy,propane-1-sulfate],
- IX. [1 $\beta$ ,2-carboxy ethane-1-sulfonic acid],
- X. [1 $\beta$ ,2-carboxy ethane-1-sulfate],
- XI. [D-aspartic acid, 3 $\alpha$ -sulfonic acid],
- XII. [D-aspartic acid, 3 $\alpha$ -sulfate],
- XIII. [D-aspartic acid, 3 $\beta$ -sulfonic acid],
- XIV. [D-aspartic acid, 3 $\beta$ -sulfate],
- XV. [L-asparagine, N-sulfonic acid],
- XVI. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XVII. [2 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XVIII. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XIX. [1 $\alpha$ -carboxy, 2-carboxamido, ethane sulfate],
- XX. [L-asparagine, 3 $\alpha$ -sulfonic acid],
- XXI. [L-asparagine, 3 $\alpha$ -sulfate],
- XXII. [L-asparagine, 3 $\beta$ -sulfonic acid],
- XXIII. [L-asparagine, 3 $\beta$ -sulfate],
- XXIV. [D-asparagine, N-sulfonic acid],
- XXV. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXVI. [2 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXVII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfonic acid],
- XXVIII. [1 $\beta$ -carboxy, 2-carboxamido, ethane sulfate],
- XXIX. [D-asparagine, 3 $\alpha$ -sulfonic acid],
- XXX. [D-asparagine, 3 $\alpha$ -sulfate],
- XXXI. [D-asparagine, 3 $\beta$ -sulfonic acid], and
- XXXII. [D-asparagine, 3 $\beta$ -sulfate].[[.]]

[[47]]48. (Currently Amended) A composition as claimed in claim [[29]]45, wherein said compound is selected from the group consisting of glutamic acid, ~~glutamine and corresponding de-amino analogs~~:

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- I. [L-glutamic acid, N-sulfonic acid],
- II. [2 $\alpha$ ,4-dicarboxy, butane-1-sulfonic acid],
- III. [2 $\alpha$ , 4-dicarboxy, butane-1-sulfate],
- IV. [1 $\alpha$ , 3-dicarboxy, propane sulfonic acid],
- V. [1 $\alpha$ , 3-dicarboxy, propane sulfate],
- VI. [1 $\beta$ , 3-dicarboxy, propane sulfate],
- VII. [1 $\beta$ , 3-dicarboxy, propane sulfonic acid],
- VIII. [D-glutamic acid, N-sulfonic acid],
- IX. [2 $\beta$ , 4-dicarboxy, butane-1-sulfonic acid],
- X. [2 $\beta$ , 4-dicarboxy, butane-1-sulfate],
- XI. [D-glutamic acid, 3 $\alpha$ -sulfonic acid],
- XII. [D-glutamic acid, 3 $\alpha$ -sulfate],
- XIII. [D-glutamic acid, 3 $\beta$ -sulfonic acid],
- XIV. [D-glutamic acid, 3 $\beta$ -sulfate],
- XV. [D-glutamic acid, 4 $\alpha$ -sulfonic acid],
- XVI. [D-glutamic acid, 4 $\alpha$ -sulfate],
- XVII. [D-glutamic acid, 4 $\beta$ -sulfonic acid],
- XVIII. [D-glutamic acid, 3 $\beta$ -sulfate],
- XIX. [L-glutamine, N-sulfonic acid],
- XX. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XXI. [2 $\alpha$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XXII. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXIII. [1 $\alpha$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXIV. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfate],
- XXV. [1 $\beta$ -carboxy, 3-carboxamido, propane-1-sulfonic acid],
- XXVI. [D-glutamine, N-sulfonic acid],
- XXVII. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfonic acid],
- XXVIII. [2 $\beta$ -carboxy, 4-carboxamido, butane-1-sulfate],
- XXIX. [D-glutamine, 3 $\alpha$ -sulfonic acid],
- XXX. [D-glutamine, 3 $\alpha$ -sulfate],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- XXXI. [D-glutamine, 3 $\beta$ -sulfonic acid],
- XXXII. [D-glutamine, 3 $\beta$ -sulfate],
- XXXIII. [D-glutamine, 4 $\alpha$ -sulfonic acid],
- XXXIV. [D-glutamine, 4 $\alpha$ -sulfate],
- XXXV. [D-glutamine, 4 $\beta$ -sulfonic acid],
- XXXVI. [D-glutamine, 4 $\beta$ -sulfate],
- XXXVII. [L-homoglutamic acid, N-sulfonic acid],
- XXXVIII. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfonic acid],
- XXXIX. [Pentane-2 $\alpha$ , 5-dicarboxy-1-sulfate],
- XL. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfonic acid], and
- XLI. [Butane-1 $\alpha$ , 4-dicarboxy-1-sulfate].[[.]]

[[48]]49. (Currently Amended) A composition as claimed in claim [[29]]46, wherein said compound is selected from the group consisting of ~~homoglutamic acid, homoglutamine and corresponding de-amino analogs:~~

- I. [D-homoglutamic acid, N-sulfonic acid],
- II. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfonic acid],
- III. [Pentane-2 $\beta$ , 5-dicarboxy-1-sulfate],
- IV. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfonic acid],
- V. [Butane-1 $\beta$ , 4-dicarboxy-1-sulfate],
- VI. [D-homoglutamic acid, 3 $\alpha$ -sulfonic acid],
- VII. [D-homoglutamic acid, 3 $\alpha$ -sulfate],
- VIII. [D-homoglutamic acid, 3 $\beta$ -sulfonic acid],
- IX. [D-homoglutamic acid, 3 $\beta$ -sulfate],
- X. [D-homoglutamic acid, 4 $\alpha$ -sulfonic acid],
- XI. [D-homoglutamic acid, 4 $\alpha$ -sulfate],
- XII. [D-homoglutamic acid, 4 $\beta$ -sulfonic acid],
- XIII. [D-homoglutamic acid, 4 $\beta$ -sulfate],
- XIV. [D-homoglutamic acid, 5 $\alpha$ -sulfate],
- XV. [D-homoglutamic acid, 5 $\alpha$ -sulfate],

Application No. 10/748,844  
Response to Restriction Requirement mailed July 26, 2005

- XVI. [D-homoglutamic acid, 5 $\beta$ -sulfonic acid],
- XVII. [D-homoglutamic acid, 5 $\beta$ -sulfate],
- XVIII. [L-homoglutamine, N-sulfonic acid],
- XIX. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XX. [Pentane-2 $\alpha$ -carboxy, 5-carboxamido-1-sulfate],
- XXI. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfonic acid],
- XXII. [Butane-1 $\alpha$ -carboxy, 4-carboxamido-1-sulfate],
- XXIII. [D-homoglutamine, N-sulfonic acid],
- XXIV. [Pentane-2 $\beta$ -carboxy, 5-carboxamido-1-sulfonic acid],
- XXV. [Butane-1  $\beta$  -carboxy, 4-carboxamido-1-sulfonic acid],
- XXVI. [Butane-1  $\beta$  -carboxy, 4-carboxamido-1-sulfate],
- XXVII. [D-homoglutamine, 3 $\alpha$ -sulfonic acid],
- XXVIII. [D-homoglutamine, 3 $\alpha$ -sulfate],
- XXIX. [D-homoglutamine, 3 $\beta$ -sulfonic acid],
- XXX. [D-homoglutamine, 3 $\beta$ -sulfate],
- XXXI. [D-homoglutamine, 4 $\alpha$ -sulfonic acid],
- XXXII. [D-homoglutamine, 4 $\alpha$ -sulfate],
- XXXIII. [D-homoglutamine, 4 $\beta$ -sulfonic acid],
- XXXIV. [D-homoglutamine, 4 $\beta$ -sulfate],
- XXXV. [D-homoglutamine, 5 $\alpha$ -sulfonic acid],
- XXXVI. [D-homoglutamine, 5 $\alpha$ -sulfate],
- XXXVII. [D-homoglutamine, 5 $\beta$ -sulfonic acid], and
- XXXVIII. [D-homoglutamine, 5 $\beta$ -sulfate].